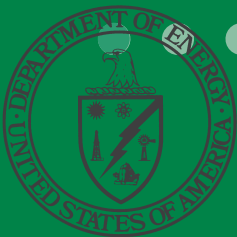


# industry partnerships

*providing innovative solutions  
for environmental problems*



Office of Environmental Management  
Office of Science and Technology



October 2000

## Letter from the Assistant Secretary

Many businesses, in partnership with the Department of Energy, have developed and demonstrated improved technologies that address the needs of the DOE Environmental Management (EM) Program. These companies have made their products and services commercially available to help address EM's cleanup challenges.

DOE support helps many companies conduct applied research, development, demonstration, testing, and evaluation, enabling them to achieve earlier market entry than would be possible under exclusively company-funded development. In turn, as these technologies become available, many are now being deployed at multiple DOE sites to lower the costs associated with cleanup activities, reduce health and safety risks, and solve intractable problems.

For more information on EM's products and services, please visit us on the Web at <http://www.em.doe.gov>.



Carolyn L. Huntoon

Assistant Secretary for Environmental Management

## EM'S INDUSTRIAL PARTNERS

**Key:** ▲ indicates deployment at one or more DOE sites.

**Italics** indicate the vendor's name for the technology.

The Office of Science and Technology Tech ID number [#] is used in the Technology Management System at <http://ost.em.doe.gov>.

### ALABAMA

**Bluegrass Concrete Cutting, Inc.**  
Greenville

- ▲ Concrete Shaver [#1950]
- Liquid-Nitrogen Cooled Diamond-Wire Concrete Cutting [#2107]

### ALASKA

**AFI PermaFreeze**

Anchorage

- ▲ Frozen Soil Barrier [#51]

### ARIZONA

**Burge Environmental**

Tempe

- ▲ Fiber Optic Probe/Sensor for Trichloroethylene in Soil and Groundwater [#466]

### CALIFORNIA

**Aerojet Corporation**

Sacramento

Plasma Hearth Process (*Platelet-Cooled Plasma Arc Torch*) [#26]

**Allied Technologies**

Fremont

- ▲ Graphite Electrode DC Arc Furnace [#1652]

**Electronic Sensor Technology**

Newbury Park

Surface Acoustic Wave/Gas Chromatography System for Trace Vapor Analysis [#282]

**Geo-Con, Inc.**

Sacramento

- ▲ Deep Soil Mixing (*In Situ Soil Mixing*) [#54]

**Geokinetics**

Berkeley

- ▲ Lasagna (*Electrokinetic Remediation*) [#4]

**Geoprobe Systems, Western Regional Office**

Reedley

- ▲ Compact Subsurface Investigation System [#2153]
- ▲ Membrane Interface Probe System for Direct Push System (*MIP*) [#2950]

**Integrated Water Resources, Inc.**

Santa Barbara

- ▲ Dynamic Underground Stripping [#7]
- ▲ Electrical Resistance Tomography for Subsurface Imaging [#17]
- Hydrous Pyrolysis/Oxidation [#1519]

**Intelligent Optical Systems, Inc.**

Torrance

Neural Network Raman Cone Penetrometer Signal Extraction and Enhancement (*Automatic Spectral Analysis and Interpretation Tool*) [#242]

## **Lawrence Livermore National Laboratory**

Livermore

Monitor for Demonstrating the Effectiveness of Barrier Installation and Long-term Performance using Electrical Resistance Tomography [#2120]

## **Membrane Technology and Research, Inc.**

Menlo Park

Test Beds for Process Testing (*VaporSep Technology for VOC Recovery*) [#176]

## **Petrogen International, Ltd.**

San Leandro

▲ Oxy-Gasoline *Cutting Torch* [#1847]

## **ResonantSonic International**

Woodland

▲ ResonantSonic Drilling [#55]

## **Science Applications International Corporation**

San Diego

▲ Wireless Remote Radiation Monitoring *System* (WRRMS) [#2104]

## **SteamTech Environmental Services, Inc.**

Bakersfield

▲ Dynamic Underground Stripping [#7]

Electrical Resistance Tomography - Tanks [#140]

Hydrous Pyrolysis/Oxidation [#1519]

## **Terra-Kleen Response Group, Inc.**

San Diego

Terra-Kleen Solvent Extraction *System* [#1469]

## **The Visalia Alliance - Southern California Edison Company**

Rosemead

▲ Dynamic Underground Stripping [#7]

## **Tri Tool, Inc.**

Rancho Cordova

▲ High Speed Clamshell Pipe Cutter [#1807]

## **COLORADO**

### **ADA Technologies**

Littleton

Recovery of Mercury (*Stabilization of Mercury-Containing Waste*) [#1703]

### **Aguirre Engineers, Inc.**

Englewood

▲ Dig Face Characterization [#12]

### **AquaVision**

Palisade

▲ Colloidal Borescope [#465]

### **Arrakis, Inc.**

Castle Rock

Cryofracture™ [#1991]

### **Boulder Scientific**

Mead

Cesium Removal by Resorcinol-Formaldehyde [#2006]

### **COGEMA, Inc.**

Englewood

▲ Transportable Vitrification System (TVS) (*Waste-Vit® System*) [#222]

### **EarthWatch, Inc.**

Longmont

Remote Sensing Systems Development and Applications (*Imagery and Information Products*) [#208]

### **MACTEC, Inc.**

Grand Junction

▲ Passive Reactive Barrier [#46]

### **R. T. Reiman**

Niwot

Gamma-Ray Spectrometer [#626]

## **Waste Management Nuclear Service**

Lakewood

Low Temperature Thermal Desorption (Vac Trax) [#107]

▲ Stabilized Contaminates using Arrow-Pak Polymer

Macroencapsulation [#2159]

## **CONNECTICUT**

### **Canberra Industries**

Meriden

▲ In Situ Object Counting System [#2098]

### **CS Unitec, Inc.**

Wilton

▲ Concrete Grinder [#2102]

### **Radiological Services, Inc.**

New London

▲ Pipe Crawler Internal Piping Characterization System [#1810]

## **DISTRICT OF COLUMBIA**

### **Bioscan, Inc.**

Washington

Portable Scintillation Counter [#2311]

## **FLORIDA**

### **LVI Environmental Services, Inc.**

Coral Springs

In Situ Chemical Treatment of Asbestos [#73]

### **Microsensor Systems, Inc., a Sawtek company**

Orlando

Surface Acoustic Wave Array Detectors (*Sensors and Instruments*) [#16]

## **GEORGIA**

### **ITT Flygt Corporation**

Suwanee

▲ Flygt Mixer [#2232]

### **Millennium Services, Inc.**

Woodstock

▲ Position Sensitive Radiation

Monitoring (Surface

Contamination

Monitor/*Survey Information*

*Management*

*System-SCM/SIMS*) [#1942]

### **Shonka Research**

Associates

Marietta

▲ Position Sensitive Radiation

Monitoring (Surface Contamination

Monitor) [#1942]

### **Williams Power Corp.**

Stone Mountain

ALARA 1146 Strippable (*Cavity Decon*) Coating [#2314]

## **IDAHO**

### **Sage Earth Science**

Idaho Falls

▲ Rapid Geophysical Surveyor [#1995]

### **Science Applications**

**International Corporation**

Idaho Falls

Plasma Hearth Process [#26]

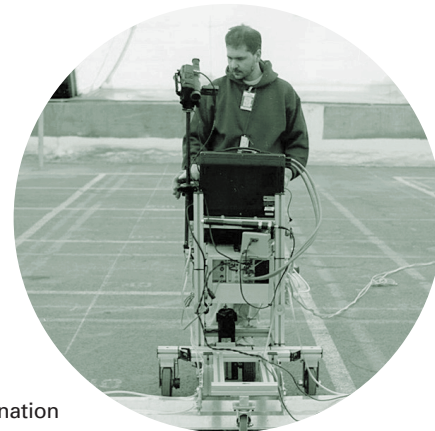
## **ILLINOIS**

### **Argonne National Laboratory**

Argonne

▲ Expedited Site Characterization (*QuickSite™*) [#77]

Stabilization Using Phosphate Bonded Ceramics (*Ceramicrete*) [#117]





### **Bladon International, Inc.**

Oak Brook

Cone Penetrometer Testing Lysimeter (*Bladon Direct Push Lysimeter*) [#2365]

### **WITCO, a division of Bio-Imaging Research**

Lincolnshire

Nondestructive Waste Assay Using Gamma-Ray Active and Passive Computed Tomography [#2123]

▲ Waste Inspection Tomography (WIT) [#259]

## **IOWA**

### **Ames Laboratory**

Ames

Portable X-Ray, K-Edge Heavy Metal Detector [#134]

## **LOUISIANA**

### **G/O Corp.**

Slidell

NuFab Anti Contamination Suit [#1855]

## **MAINE**

### **Sponge Jet, Inc.**

Eliot

Soft Media Blast Cleaning (*Sponge Blasting*) [#1899]

## **MARYLAND**

### **ARD Environmental, Inc.**

Laurel

In-Tank Waste Retrieval - Vehicle Based System [#2012]

### **BAI Aerosystems, Inc.**

Easton

▲ Remotely Piloted Vehicles (RPVs) and Miniaturized Sensors [#76]

### **DCB Delaware**

### **Cornerstone Builders**

Hyattsville

In Situ Chemical Treatment of Asbestos [#73]

### **Engineering Computer**

### **Optecnomics, Inc.**

Annapolis

▲ Road Transportable Analytical Laboratory (RTAL) [#292]

### **ER Technologies, Inc.**

Edgewater

▲ In Well Vapor Stripping [#6]

### **GTS Duratek Corporation**

Columbia

▲ Duramelter/Joule-Heated Melter [#58]

### **Rad Elec, Inc.**

Frederick

E-PERM Alpha Surface Monitor [#2315]

## **MASSACHUSETTS**

### **Bartlett Services, Inc.**

Plymouth

▲ Excel Automatic Locking Scaffold [#2320]

### **Geo-Centers, Inc.**

Newton

▲ Magnetometer Towed Array (*Surface Towed Ordnance Locator System*) [#548]

▲ Road Transportable Analytical Laboratory (RTAL) [#292]

### **InPhotonics, Inc., a subsidiary of EIC Laboratories, Inc.**

Norwood

▲ Field Raman Spectrograph [#873]

Raman Probe [#1544]

### **Mech-Chem Associates, Inc.**

Norfolk

▲ Out of Tank Evaporator [#20]

### **Niton Corporation**

BillERICA

Lead Paint Analyzer [#2317]

The NITON XL-800 Series Multi-Element Spectrum Analyzer (Alloy Analyzer) [#2397]

## **MICHIGAN**

### **GSI Lumonics**

Northville

▲ Laser Cutting and Size Reduction [#1477]

### **Mears/HDD, Inc.**

Rosebush

▲ Directional Drilling [#650]

Recirculating Wells [#65]

### **North Shore Environmental**

Ontonagon

In Situ Chemical Treatment of Asbestos [#73]

### **The Millgard Corporation**

Livonia

▲ Deep Soil Mixing [#54]

## **MINNESOTA**

### **3M**

St. Paul

▲ Empore™ Membrane Separation Technology [#1543]

▲ Membrane-Supported Particle-Bound Ligands for Cesium Removal (*3M Empore™*) [#179]

▲ Improved Surface Water Monitoring for Radionuclide Discharges (*Specialized Sampling Using 3M Technology*) [#2913]

▲ Rapid Sampling Using 3M Membrane Technology (*3M Empore™*) [#1514]

Rotary Peening with Captive Shot [#1812]

## **MISSOURI**

### **Honeywell Federal Manufacturing & Technologies**

Kansas City

▲ Micropurging of Wells (*Low Flow Sample and Purge*) [#1762]

### **Monsanto Company**

St. Louis

▲ Lasagna [#4]

### **Res Q Tek, Inc.**

St. Louis

▲ Hand Held Shear [#2304]

## **MONTANA**

### **MSE Technology Applications, Inc.**

Butte

Biomass Remediation System [#251]

Spray Casting/Manufacturing and Repair Processes to Replace Electroplating [#1138]

## **NEVADA**

### **Infrared, Inc.**

Reno

▲ Non-Intrusive Liquid Level Detection System (*Infrared Thermography for Electrical and Mechanical Analysis*) [#2403]

## **NEW HAMPSHIRE**

### **KAI Technologies, LLC**

Portsmouth

In Situ Radio Frequency Heating [#132]

## **NEW JERSEY**

### **Active Environmental Technologies**

Mount Holly

TechXtract Chemical Decontamination [#1450]



**Envirogen, Inc.**

Lawrenceville  
Bioremediation of Groundwater (*TCE bioaugmentation*) [#460]

**Everest VIT, Inc.**

Flanders  
Piping Inspection (*Remote Visual Inspection Using Specialty Cameras*) [#1811]

**GeoCleanse International, Inc.**

Kenilworth  
Fenton's Reagent (*In-situ Chemical Oxidation*) [#2161]

**Honeywell Specialty Chemicals**

Morristown  
Advanced Separations at Savannah River Site (*Strontium Removal From HLW Using Sodium Titanate Ion Exchange*) [#245]

**Polylox Separation Technologies, Inc.**

Dayton  
Water Soluble Chelating Polymers for Pu, Am Removal (*Polymer Filtration for Removal/Recovery of Heavy Metals*) [#35]

**S2C2, Inc.**

Warren  
▲ Expedited Site Characterization [#77]

**UOP, LLC**

Mt. Laurel  
▲ Cesium Removal Using Crystalline Silicotitanate [#21]

**NEW MEXICO****Advanced Manufacturing Center**

Las Cruces  
Multi-sensor Analysis Program for Environmental Restoration (MAPER) [#1861]

**BNFL Instruments, Inc.**

Los Alamos  
▲ Decommissioning In-Situ Plutonium Inventory Monitor (DISPIM) [#2241]  
Gamma Ray Imaging System (*RadScan 700*) [#1793]  
Long Range Alpha Detection for Component Monitoring [#2382]

**Boeing-SVS, Inc.**

Albuquerque  
▲ Automated Control System for Soil Vapor Extraction [#64]

**Daniel B. Stephens and Associates**

Albuquerque  
▲ Alternative Landfill Cover [#10]  
Dry Barrier Applications for Landfills [#605]

**Eberline Instruments**

Santa Fe  
▲ Long Range Alpha Detector (LRAD) [#596]

**Flexible Liner Underground Technologies, LLC**

Santa Fe  
▲ Ribbon NAPL Sampler [#2238]  
▲ SEAMIST (*Vadose FLUTE*) [#53]

**Science and Engineering Associates, Inc.**

Albuquerque  
▲ Pipe Explorer™ Surveying System [#74]

**SenSolve, Inc.**

Albuquerque  
Proximity Sensor System Development [#1631]

**Stolar Horizon, Inc.**

Raton  
Cross Borehole Electromagnetic Imaging (*Logging of Toxic Waste Plumes*) [#547]

**Thermo NUtech, Inc.**

Albuquerque  
▲ Segmented Gate System [#2158]

**NEW YORK****AIL Systems, Inc.**

Deer Park  
▲ 3-D Visual and Gamma Ray Imaging System [#2402]  
▲ Gamma Cam™ Radiation Imaging System [#1840]

**Biocube, Inc.**

Victor  
Biocube [#1837]

**Brookhaven National Laboratory**

Upton  
▲ Polymer Microencapsulation [#166]

**Convolve**

New York City  
▲ Swing-Reduced Crane Control (*Anti-Sway Controls*) [#1815]

**Foster-Miller Technologies (FMT)**

Albany  
Interactive, Computer-Enhanced, Remote-Viewing System [#33]  
▲ Topographical Mapping System (TMS) [#130]

**O'Brien & Gere**

Syracuse  
Soda Blasting Decontamination Process (*Contam-Away™*) [#369]

**Symbol Technologies**

Holtsville  
Two Dimensional (2-D) Bar Code (*Scanning Equipment and Software*) [#1365]

**NORTH CAROLINA****Container Products Corp.**

Wilmington  
▲ Steam Vacuum Cleaning (*Victory Decon System*) [#1780]

**Geophex, Ltd.**

Raleigh  
Geophex Airborne Unmanned Survey System (GAUSS) [#295]

**Troxler Electronic Laboratories, Inc.**

Research Triangle Park  
▲ Advanced In Situ Moisture Logging System [#533]

**NORTH DAKOTA****Dakota Technologies, Inc.**

Fargo  
LIF *Direct Push* Probe for CPT [#2237]

**OHIO****Applied Natural Sciences, Inc.**

Hamilton  
Biomass Remediation System (*TreeMediation™*) [#251]  
Remediation of Tritium Contaminated Groundwater by Evapotranspiration by Phreatophytes [#2189]

**NUCON International**

Columbus  
VOCs Off-Gas Recovery/Recycle [#458]

**STS Environmental Services**

North Canton  
Advanced Recyclable Media System [#1971]

**WaterWorks America, Inc.**

Mentor  
Water Solidification [#2312]

**OKLAHOMA****Rio Algom Environmental Services / Mining Corporation**

Oklahoma City  
Solution Mining (*In Situ Leaching/Chemical Mining*) [#157]



## OREGON

### MINI MITTER

Bend

- ▲ Heat Stress Monitoring System (*VitalSense*®) [#1953]

## PENNSYLVANIA

### AEA Technology Engineering Services, Inc.

Pittsburgh

- ▲ AEA Fluidic Pulse Jet Mixer [#1511]
- ▲ Fluidic Sampler [#2007]
- Soft Media Blast Cleaning [#1899]
- ▲ SRS Pump Tank Mixer [#2408]

### Delphinus Engineering

Eddystone

HTI In-Tank Waste Retrieval - Arm Based System [#2011]

- ▲ System for Tracking Remediation, Exposure, Activities and Materials (STREAM) [#1947]

### Electro-Pyrolysis, Inc.

Wayne

Electrokinetic Treatment of Contaminated Soils, Sludges, and Lagoons [#1528]

- ▲ Graphite Electrode DC Arc Furnace [#1652]

### Mercury Recovery Services, Inc.

New Brighton

Removal and Recovery of Mercury from Mixed Wastes [#267]

### Pentek, Inc.

Coraopolis

2-D Linear Motion System (*WallWalker Vertical Surface Locomotion*) [#1476]

Remotely Operated Scabbling (*Moose Remotely Operated Floor Scabber*) [#2099]

- ▲ ROTO PEEN Scaler and VAC PAC System [#1943]

### RedZone Robotics, Inc.

Pittsburgh

- ▲ Houdini: Reconfigurable In Tank Mobile Robot [#98]
- ▲ Houdini-II Remotely Operated Vehicle System [#2085]
- ▲ Rosie: Mobile Teleoperated Robot Worksystem [#1799]

### Rumsey Electric Company

Conshohocken

- ▲ Mobile Integrated Temporary Utility System [#1795]

### Vortec Corporation

Collegeville

Treatment Using Centrifugal Hearth Plasma Melter (*Vitrification of Low-Level and Mixed Wastes*) [#1592]

Vortec Cyclone Melter System [#68]

## SOUTH CAROLINA

### American Technologies, Inc.

Aiken

Purge Water Management System (*PWMS*) [#2920]

### Frham Safety Products, Inc.

Rock Hill

FRHAM-TEX II Anti Contamination Suit [#1854]

### Savannah River Technology Center

Aiken

- ▲ Remote Viewing System [#1988]

## TENNESSEE

### EQE International, Inc., an ABS Group company

Knoxville

Surveillance and Maintenance Risk and Cost Reduction Evaluation Methodologies [#185]

### GTS Duratek Corporation

Oak Ridge

Decontamination of Process Equipment Using Four Technologies [#1594]

Destruction of Carbon Tetrachloride (CCL<sub>4</sub>) by Steam Reforming [#485]

## Manufacturing Sciences Corporation

Oak Ridge

Decontamination and Conversion of Nickel Radioactive Scrap Metal [#234]

### Microbial Insights, Inc.

Rockford

- ▲ Biomolecular Probe Analysis: Bioremediation Organisms (*Microbial Community Identification*) [#468]

### The Providence Group

Knoxville

- ▲ Remotely Operated Vehicle (ROV) System for Horizontal Tanks [#2086]

### Thermatrix, Inc.

Knoxville

- ▲ Flameless Thermal Oxidation [#52]

### Transport Plastics, Inc.

Sweetwater

- ▲ Soft-Sided Waste Containers [#2240]

## TEXAS

### Duke Engineering & Services

Austin

Surfactant Enhanced Aquifer Remediation (SEAR) (*Chemically Enhanced Solubilization for Aquifer Remediation - CESAR*®) [#297]

### Fugro Geosciences

Houston

LIF Probe for CPT (*ROST*™) [#2237]

### Leak Location Services, Inc.

San Antonio

Electrical Resistance Tomography – *Landfills, Impoundments, and Tanks* [#140]

### Oceaneering Space Systems

Houston

- ▲ Oceaneering Space Systems Tank Sampling Tool [#2359]
- ▲ Robotic Tank Inspection End Effector [#278]

### Sepradyne Corporation

Denton

Sepradyne - Thermal Desorption Process for Treatment of Dioxin [#2380]

### TomoSeis, Inc.

Houston

- ▲ Cross-Well Seismic Imaging [#588]

## UTAH

### Envirocare of Utah, Inc.

Salt Lake City

Kinetic Mixer [#2160]

- ▲ Polymer Microencapsulation [#166]
- ▲ Stabilized Contaminants using Envirocare Polymer Macroencapsulation [#30]

### Peak Technology, Inc.

Sandy

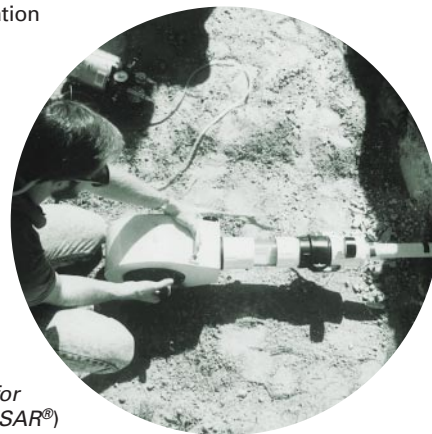
Two Dimensional (2-D) Bar Code [#1365]

## VERMONT

### Applied Research Associates, Inc.

South Royalton

- ▲ Electrical Resistance Tomography for Subsurface Imaging [#17]
- ▲ HeavyWeight Cone Penetrometer [#489]
- High Speed GC and Cone Penetration Techniques for Measuring Fuel Contamination [#283]



- ▲ Miniature Pumps in the Cone Penetrometer Tip for Groundwater and Soil Sampling (Cone Sipper) [#381]
- ▲ Penetration Enhancement for the Cone Penetrometer Using Sonic Drilling Technology [#1686]
- Tomographic Site Characterization Using CPT, ERT and GPR [#284]
- ▲ Wireline Cone Penetrometer System for Multiple Tool Usage [#2222]

#### **R.O.V. Technologies, Inc.**

Vernon

- ▲ Remotely Operated Vehicle (ROV) System for Horizontal Tanks [#2086]

### **VIRGINIA**

#### **Arctech, Inc.**

Chantilly

Humasorb™, A Lignite Derived Humic Acid for Removal of Metals and Organics [#285]

#### **Cybermotion**

Roanoke

Drum Inspection Robots [#112]

Intelligent Inspection and Survey Robot (*Aries, NavMaster® III*) [#272]

#### **Edenspace Systems Corporation**

Reston

Biomass Remediation System (*Phyto Remediation Using Herbaceous Plants*) [#251]

#### **Lukas Rescue Team, Inc.**

Fredricksburg

Self Contained *Hydraulic* Pipe Cutting Shear [#1948]

#### **PCI Geomatics**

Arlington

Remote Sensing Systems Development and Applications (*Easi/Pace, Ortho Engine, and Geomatica*) [#208]

#### **UTD, Inc.**

Manassas

- ▲ Innovative Directional and Position Specific Sampling Technique (POLO) (Steerable Vibratory Penetrometer) [#316]

### **WASHINGTON**

#### **AMEC Earth and Environmental**

Richland

In Situ Vitrification - Top Down [#1750]

#### **Applied Geotechnical Engineering & Construction, Inc.**

Richland

Close-Coupled Barrier (*AGEC*) [#1880]

- ▲ Passive Reactive Barrier [#46]

Subsurface Barrier Emplacement [#11]

#### **ARI Technologies, Inc.**

Kent

- ▲ Thermal Conversion of Asbestos [#224]

#### **BetaScint, Inc.**

Kennewick

- ▲ BetaScint Fiber-Optic Sensor for Detecting Strontium-90 and Uranium-238 in Soil and Groundwater [#70]

#### **Concrete Cleaning, Inc.**

Otis Orchards

- ▲ Centrifugal Shot Blasting [#1851]

#### **EDAX Portable Products Division**

Kennewick

X-Ray Fluorescence Spectroscopy for Heavy Metals (*Analysis of EPA RCRA metals in soil*) [#622]

#### **Integrated Environmental Technologies, LLC**

Richland

- ▲ Graphite Electrode DC Arc Furnace (*Plasma Enhanced Melter™*) [#1652]

#### **Lasentec**

Redmond

- ▲ Particle Size Distribution Monitor for Tank Waste Slurry (*FRBM In-process Particle Size and Solids Concentration Monitor*) [#2935]

#### **Master-Lee Hanford Corp.**

Richland

- ▲ Reactor Surface Contamination Stabilization (*InstaCote®-ML*) [#1839]

#### **Pacific International**

##### **GROUT Company**

Bellingham

Low-Density Cellular Concrete Void Filling (*Nuclear Decommissioning by Grouting*) [#1846]

#### **Pulsair**

Bellevue

- ▲ Pulsed-Air Mixer [#1510]

#### **RKK Soil Freeze Technologies, LLC**

Redmond

- ▲ Frozen Soil Barrier (*CRYOCELL®*) [#51]

#### **Rowand Machinery**

Pasco

- ▲ Concrete Dust Suppression System [#2154]

#### **ThermoRetec**

Richland

- ▲ Indoor Radiation Mapping Using Laser Assisted Ranging and Data System [#1946]

#### **UFA Ventures**

Richland

- ▲ Unsaturated Flow Apparatus [#105]

#### **Waterjet Technology, Inc.**

Kent

- ▲ Borehole Miner [#1499]
- ▲ Confined Sluicing End Effector [#812]
- Gunite Scarifying End Effector (*GSEE*) [#2384]
- Lightweight Scarifier [#1500]
- Soft Waste Dislodging End Effector [#809]

### **WISCONSIN**

#### **Vector Technologies, Ltd.**

Milwaukee

- ▲ VecLoader HEPA Vacuum Insulation Removal [#1784]

### **CANADA**

#### **Delta Temax, Inc.**

Pembroke, Ontario

- ▲ Personal Ice Cooling System (PICS) (*CORETECH Body Temperature Control System*) [#1898]

#### **EnviroMetal Technologies, Inc.**

Waterloo, Ontario

- ▲ Passive Reactive Barrier (*Permeable Reactive Barrier*) [#46]

#### **Inuktun Services, Ltd.**

Cedar, British Columbia

- ▲ Internal Duct Characterization System [#42]

#### **MacDonald Dettwiler Space and Advanced Robotics, Ltd.**

Brampton, Ontario

- ▲ Light Duty Utility Arm [#85]

### **GREAT BRITAIN**

#### **Marcrist Industries Limited**

South Yorkshire, Doncaster

- ▲ Concrete Shaver [#1950]

### **NETHERLANDS**

#### **CryCle Cryogenic Development**

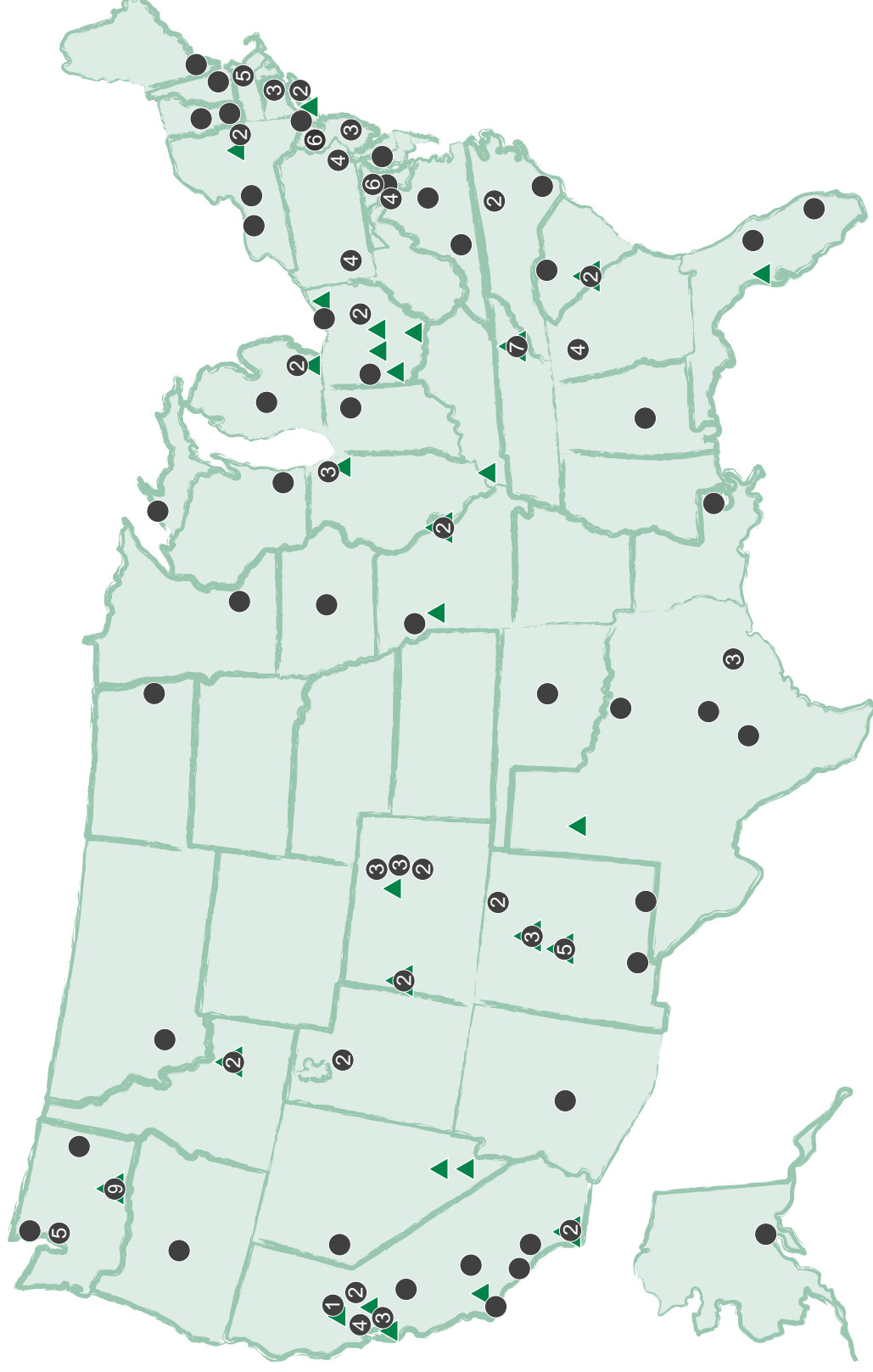
Haarlem

- Cryogenic Cutting (*Supersonic Gas/Liquid Cleaning*) [#101]





# EM's industrial partners: solving a national problem



● - vendor site (numbers indicate multiple vendors in same location)

▲ - deployment site

October 2000